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The President's Letter

The intestinal tract was hidden from view and studied by indirect methods until open tube endoscopy was developed. The direct view of the stomach and the enormous painstaking, meticulous studies of Beaumont with a gastric fistula and many others since then stimulated interest in endoscopy. Our ability to evaluate directly such things as motion and intestinal contour came into clinical use with x-ray and fluoroscopy. We can now pinpoint tumors when very small and long before they can be felt externally. Vision in the intestinal tract was limited until the late 19th century to lesions that could be seen in the mouth, larynx or upper esophagus and to the lower rectum. Rigid tubes with direct vision were the only methods available.

Gastrointestinal endoscopy with a search for instruments and experience with their use has grown in general use since then. Because of the tortuosity of the intestinal tract, it became evident very early that a flexible tube would be less dangerous and therefore, more acceptable for diagnostic purposes. Still, however, the ability to see something — movement, infection, or tumor formation was the important aim in the early days of instrument development. The Wolfe-Schindler flexible gastroscope with its optical system and later, the flexible esophagoscope was received and used with great enthusiasm. These instruments have been widely used and accepted around the world and a vast accumulation of knowledge has resulted. Visual experiences are obviously subject to personal interpretation. The diagnostic abilities of the observer to pinpoint and identify a disease process was limited therefore to the surface seen and the experience and training of the observer making the examinations. Errors in judgment, the enthusiasm of the neophite and the untrained observer led to some doubts as to the overall value of these procedures. Their use, however, continued to grow and find a wider audience.

The ability to combine vision and biopsy was again a natural end result of endoscopy, first in the esophagus where open rigid tube esophagoscopy made removal of foreign bodies and pieces of tissue relatively easy. Then an instrument was devised by Benedict where direct vision of localized pathology could be followed in most cases by a visual biopsy. The blind biopsy capsules were soon developed and in wide use and became useful tools of investigation. Both methods, of course, will sample only local areas of pathology. If one is fortunate enough to find diffuse disease, either method will suffice because the microscopic examination of the tissue will reveal the pathological cellular process. A negative biopsy means no more than it does elsewhere in the body, that is, the piece of tissue examined is normal. Since the mortality and morbidity of gastric biopsy has been negligible, it can be repeated on several occasions if necessary. If positive, this biopsy completes an accurate study with a pinpoint diagnosis but this has not always been true. There still remain areas that are invisible or cannot be reached, or patients that are impossible to scope or reluctant or refuse repeat endoscopic procedures. The cytological studies with various methods of obtaining these cells for study is now an accepted and valuable addition to our methods.

Cytology is increasing our clinical diagnostic accuracy in all the hidden crevices of the body. Such organs as the pancreas and the bile ducts seem to be revealing cellular secrets at an early stage of disease. The development of the fibroscope appears to be nearing completion and its promise of reaching lower small intestine for direct vision or higher into the colon seems imminent. The small intestine capsule biopsy with the many new instruments recently developed, is eventually going to remove any part of the intestinal tract from our ability to biopsy it. With peritoneoscopy and with biopsy of the liver, we are again exploring extra intestinal tract disease but still associated with disease originating in the digestive tract. Flexible tube gastroscopy and esophagoscopy were the first and are spectacular methods of viewing these organs and obtaining tissue for microscopic study.

I believe that everyone doing endoscopy well remembers the impact of the first view of the stomach he had and the impressiveness of being able to show to medical students or other doctors a gastric ulcer or a gastric cancer. In the living tissue it looks different than on the operating table or in the post mortem specimen bottle. I would like to emphasize that every method that we have used or developed for investigation of the intestinal tract has only one purpose and that is to add knowledge about the patient and to develop an accurate diagnosis. It would seem to me therefore, that rather than being competitive in their use, they should be considered complimentary — direct vision is a little better than silhouette vision — biopsy or cytology is a little more informative than either of the older methods of study. These investigative tools then are useful in avoiding the surgical exploration with an unknown diagnosis. This is not to say that such a result may not occur, or that surgical exploration is not another useful instrument but certainly morbidity and mortality are much reduced by more thorough examinations, before operation. The physician who utilizes only one of these diagnostic methods and is disrespectful of the others is surely resting his diagnostic acumen on a weak structure.

Methods and instruments are only a means to an end. In all probability, we have only scratched the surface of future developments in instruments. The American Gastroscopic Society, even though it has grown from a small club where methods and instruments were the main conversation pieces, should not be limited to just this fraction of study of the intestinal tract. The entire intestinal tract is our problem and any means that we can develop to study it is our aim. Improvements in instruments, changes in design and improvements in techniques are occurring so fast that our clinical utilization of these instruments is falling behind development. Expense and obsolesence of instruments are important factors concerned with clinical application of the new developments.

In our recent meeting in New Orleans, the program was concerned with photography and biopsy and cytology, as well as endoscopy experience and the reporting of the rare case. Wide interest in other parts of the intestinal tract was evidenced by many doctors who do not restrict themselves to one instrument or method. It seems to me that this has been a natural development and I believe has solidified the steps necessary for the development of a broad gastrointestinal endoscopy society which will act as a sounding board for experiences, methods, instruments and most important of all, improvement in the end result that we are all searching for--complete diagnostic accuracy.

*CLINICAL AND GASTROSCOPIC EVALUATION OF PATIENTS HAVING SYMPTOMS FOLLOWING GASTRIC SURGERY**
With Special Reference to Gastritis

J. Alfred Rider, M.D., Ph.D., Hugo C. Moeller, M.D., Ph.D.,
Jennie Lee, M.D., and Lourdes F. Agcaoili, M.D.**

One of the most difficult problems which confronts the gastroenterologist is that of the patient who returns following surgery with persistent or new symptoms. The incidence of symptoms subsequent to operative procedures on the stomach has been reported variously between 0 and 80 per cent, depending upon the author and the criteria used. (1, 2, 3, 4) A conservative estimate based on experience with such patients in our clinic is that 20-30 per cent have symptoms following gastric surgery.

In evaluating patients who have had surgery, it may be difficult to determine which symptoms persisted in spite of surgery and which symptoms appeared for the first time after surgery. A survey of the literature reveals few studies in which symptoms and gastroscopic findings are correlated. (5, 6, 7, 8, 9) It is the purpose of this paper to report the results of such a study and to attempt to answer the following questions:

1. What symptoms bring the patient to the gastroenterolgist following gastric surgery?

2. Is there a change in symptomatology in this group following surgery?

3. Of what significance is the finding of gastritis?

4. Is gastroscopy routinely indicated for the patient who has symptoms following gastric surgery?

MATERIALS AND METHODS

Seventy-eight consecutive patients who were referred to the gastrointestinal clinic because of persistent, recurrent, or new symptoms following gastric surgery were evaluated clinically and gastroscopically. There were 53 males and 25 females aged 23 to 78 years. Sixty-one of these patients had a subtotal gastric resection of the Billroth II type; 2 patients had a Billroth I procedure. Fifteen patients had a gastroenterostomy; of these, two had a vagotomy in addition.

The diagnoses at the time of the original surgery are given in Table I. As might be expected, most of the operations were performed for peptic ulcer. The time at which gastroscopic examination was done ranged from three months to 29 years following surgery. The symptoms as reported by the patients varied in onset from immediately following surgery to 26 years after surgery.

A careful history and physical examination were obtained on all patients. Most of the patients had previous clinical records and had been observed in the clinic prior to surgery. Routine blood counts, urinalyses, and serology were obtained in all cases. Roentgenologic examinations of the upper gastrointestinal tract, gastric analysis, uropepsin determination, and cytological examination were made routinely. All patients were examined gastroscopically. Our routine procedure was as follows: After fasting for 12 hours, the patient was given preoperative medication consisting of 50-100 mg of Demerol and 0.13 gm of sodium phenobarbital subcutaneously, 15-30 minutes before the procedure. Each patient was given a defoaming agent: a lactose tablet containing 40 mg of methyl polysiloxane (Mylicon(R)) with a small amount of water taken orally. All dentures were removed. The pharynx was then anesthesized by direct application of 15 cc of 2 per cent Pontocaine(R) with 3 drops of 1:1000 epinepherine. Careful aspiration using the Ewald tube was performed while the patient lay on an electric tilting table with the head lowered. Following this the patient was

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put in the standard left lateral position, and a Cameron omniangle gastroscope was used for the definitive examination. In the present series of examinations there were no toxic effects or complaints and the procedure was well tolerated by all patients.

Three main types of gastritis based upon the gross gastroscopic appearance were distinguished. Although the authors are cognizant of the fact that the gastroscopic picture correlates poorly with the histologic appearance of tissue obtained by gastroscopic biopsy, and of the possibility that the various gross forms of gastritis may represent different stages of the same disease, the criteria used for the diagnosis of gastritis were essentially as follows: (1) *Superficial gastritis:* Typified by increased erythema, patchy adherent mucous, edema, and superficial hemorrhage. (2) *Hypertrophic gastritis:* Displayed an irregular nodular mucosa with a "cobblestone" appearance. (3) *Atrophic gastritis:* Characterized by pale, grayish-tan mucosa with numerous, readily apparent, prominent branching blood vessels.

Other diagnoses were gastric ulcer, stomal ulcer, stenotic stoma, abnormally large stoma, polyps, gastric malignancy, and normal mucosa and stoma.

RESULTS

A detailed comparison of the chief symptoms reported by the patients before surgery with those occurring after surgery is essential in assessing the results of surgery.

The major symptoms encountered. Table II lists the major symptoms encountered following gastric surgery.

Comparison of pre- and post-operative symptoms. The incidence of massive hemorrhage before and after surgery was similar; 25.6% of the patients had a massive hemorrhage before surgery, and 20.5% had a similar hemorrhage at some time following surgery. Symptoms such as pyrosis, gas, and bloating were much more common following surgery than before surgery, as were nutritional disturbances manifested by anemia, weakness, anorexia, fatigue, and weight loss. These symptoms were rarely encountered before surgery, except in the 6 patients who had gastric malignancy.

One additional group warrants comment: it is composed of those suffering from postgastrectomy syndromes manifested by postprandial diarrhea, weakness, sweating, and lower abdominal cramp-like pain. None of these symptoms occurred prior to surgery.

Evaluation of the finding of gastritis. Of the 78 patients there were 43, or 55%, in whom the diagnosis of gastritis was made postoperatively by gastroscopic examination. In both sexes incidence is the same. Gastritis was found in 28, or 59.6%, of the 47 patients with duodenal ulcer; 5, or 35.7%, of the 14 patients with gastric ulcer; and 3, or 75% of the 4 with both duodonel and gastric ulcer. Of the 6 cases of gastric malignancy, 2 had evidence of gastritis, an incidence of 33⅓%. However, since the series is small, these comparisons are probably not significant. A detailed analysis is given in Table III.

The various types of gastritis found in the present series of cases are shown in Table IV. A comparison of the symptoms reported by the 40 patients with gastroscopic evidence of gastritis are compared with symptoms reported by the 38 patients who did not have gastritis. There does not appear to be any significant difference in these 2 groups. (Table V) Since the majority of the patients in the present study were not gastroscopically examined before surgery, it was impossible to determine whether there is a causal relationship between surgery and the occurrence of gastritis. Therefore, 100 consecutive gastroscopic examinations in patients who had not undergone gastric surgery were analyzed. The results are shown in Table VI and VII. It is apparent that the incidence of gastritis in these groups is quite similar: 54% of the non-surgical cases had evidence of gastritis and 51.3% of the post-gastric surgery cases had gastritis. There is thus no evidence from this study that gastric surgery increases the incidence of gastritis. Another method of evaluating the significance of gastritis is to determine the results of therapy. In Table VIII it can be seen that the response

to generally accepted therapy in the patients with and without gastritis was practically the same. Even though the incidence of symptoms in the patients with gastritis does not differ significantly from that in patients who did not have gastritis, and although the response to treatment is no better, it does not necessarily follow that in individual cases gastrointestinal symptoms may not be attributable to nonspecific inflammatory changes.

Value of Gastroscopic Findings. (Table IX) Roentgenographic techniques are unreliable in the diagnosis of gastritis. The performance of gastroscopy enabled us to diagnose gastritis in 40 patients, 33 of whom had roentgenographically normal-appearing stomach postoperatively. The remaining 7 had other lesions demonstrated by roentgenography and by gastroscopy. In the total group of 78 patients there were 9 who had roentgenographic evidence of a stomal ulcer. Five of these diagnoses were confirmed by gastroscopic examination. On the other hand, 2 stomal ulcers were seen only at the time of gastroscopy. Two gastric ulcers were seen by both methods of examination. There was one case in which a polyp was found by gastroscopy alone and one case in which a polyp was found only by roentgenographic examination.

There were 3 cases of recurrent gastric malignancy. These were all demonstrated gastroscopically, but only 2 were visualized by the roentgenologist. It was felt from the gastroscopic appearance that the stomas of 4 patients were definitely abnormal and that this condition contributed to the patients' symptoms. Three of these stomas appeared to be stenotic and one was abnormally large. Gastroscopic and roentgenographic findings in the remaining 23 patients were negative.

It is felt that because gastroscopy is the only practical method for the diagnosis of gastritis in post-operative patients, because it confirms roentgenographic diagnoses, and because it may indicate a condition which has not been demonstrated by roentgenographic techniques, it is routinely indicated for the patient who has symptoms following gastric surgery.

SUMMARY

1) In a series of 78 patients who had had gastric surgery, the predominant symptoms were (1) hemorrhage, (2) pyrosis, gas, and bloating, (3) nutritional disturbances, and (4) early and late postgastrectomy syndromes.

2) A comparison of pre- and post-operative symptoms indicates that the incidence of hemorrhage is similar and that there is an increase in all other symptoms.

3) The incidence of gastritis in post-operative patients was no greater than that found in patients who did not have gastric surgery. The presence or absence of gastritis did not appear to change the symptoms significantly in the post-operative patient.

4) All patients with symptoms following gastric surgery should have the benefit of a gastroscopic examination. It is an examination which permits the diagnosis of gastritis, confirms roentgenographic diagnosis, and which may reveal lesions that have been overlooked by roentgenographic examination, thereby increasing diagnostic accuracy.

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TABLE I

DIAGNOSIS AT TIME OF ORIGINAL SURGERY

Diagnosis	*Number of Cases*
Duodenal ulcer	47
Gastric ulcer	14
Duodenal and gastric ulcer	4
Hypertrophic gastritis	3
Superficial gastritis	1
Carcinoma of the stomach	5
Lymphosarcoma of the stomach	1
Leiomyoma of the stomach	1
Duodenal diverticulum	1
Dilated duodenum caused by adhesions	1
Total	78

TABLE II

COMPARISON OF PRE- AND POST-OPERATIVE SYMPTOMS IN 78 PATIENTS

Symptom	*Pre-Operative* Number	%	*Post-Operative* Number	%
Massive hemorrhage	20	25.6	16	20.5
Postprandial epigastric pain	58	74.4	43	55.1
Nausea, vomiting	31	39.7	41	52.6
Pyrosis, gas, bloating	8	10.3	20	25.6
Severe weakness, fatigue, anorexia, severe weight loss	4	5.1	20	25.6
Diarrhea, postprandial sweating, lower abdominal cramp-like pain	0	0.0	16	3.8
Macrocytic anemia	0	0.0	3	3.8

TABLE III

INCIDENCE OF GASTRITIS IN THE POST-OPERATIVE STOMACH

Original Diagnosis	*Number of Cases*	*Cases of Gastritis*
Duodenal ulcer	47	28
Gastric ulcer	14	5
Duodenal and gastric ulcer	4	3
Superficial gastritis	1	1
Hypertrophic gastritis	3	1
Carcinoma	5	1
Lymphosarcoma	1	0
Leiomyoma	1	0
Duodenal diverticulum	1	0
Dilated duodenum caused by adhesions	1	1
Total	78	40 (51.3%)

TABLE IV

TYPES OF GASTRITIS IN 40 CASES

Hypertrophic	10
Atrophic	11
Superficial	14
Combined	5
Total	40

TABLE V

SYMPTOMS IN RELATION TO PRESENCE OR ABSENCE OF GASTRITIS

Symptom	*With Gastritis* (40)	*Without Gastritis* (38)
Massive hemorrhage	9	7
Postprandial epigastric pain	23	20
Nausea, vomiting	22	19
Pyrosis, gas, bloating	7	13
Severe weakness, fatigue, anorexia, severe weight loss	7	13
Diarrhea, postprandial sweating, lower abdominal cramp-like pain	2	14
Macrocytic anemia	3	0

TABLE VI

INCIDENCE OF GASTRITIS IN 100 CONSECUTIVE NON-SURGICAL CASES

Clinical Diagnosis	*Number of Cases*	*Cases of Gastritis*
Functional bowel distress	30	19
Duodenal ulcer	14	4
Gastric ulcer	34	18
Gastrointestinal hemorrhage	11	8
Hiatus hernia	8	3
Gastric diverticulum	1	0
Pernicious anemia	1	1
Hereditary telangectasia	1	1
Total	100	54 (54%)

TABLE VII

TYPES OF GASTRITIS IN 100 NON-SURGICAL CASES

Hypertrophic	22
Atrophic	29
Superficial	3
Combined	0
No gastritis	46
Total	100

TABLE VIII

FOLLOW-UP STUDY AFTER GASTROSCOPY IN 78 PATIENTS

	Gastritis	*No Gastritis*
Improved after therapy	22	22
No improvement after therapy	16	14
Died (one of hemorrhage, one of heart failure)	2	
Died (one of cancer, one of heart failure)		2
Total	40	38

TABLE IX

FINAL DIAGNOSIS BASED ON GASTROSCOPIC AND X-RAY FINDINGS IN 78 POST-OPERATIVE PATIENTS

Diagnosis	*Gastroscopy*	*X-Ray*
Gastritis (40)*	40	0
Stomal ulcer (11)**	7	9
Gastric ulcer (2)	2	2
Gastric polyp (2)	1	1
Abnormal stoma (4)	4	0
Gastric malignancy (3)	3	2
Normal mucosa (23)	23	23

* 7 patients had other diagnosis in addition to gastritis.

** In 2 of these cases diagnosis was made by gastroscopy alone.

Discussion on Gastroscopic and Clinical Evaluation of Postgastrectomy Patients, by Drs. J. Alfred Rider, Hugo C. Moeller, Jennie Lee, and Lourdes F. Agcaoili, San Francisco, Calif.

(Question by Dr. J. Edward Berk, Detroit, Mich.:) Would I be correct in interpreting your conclusions from your observations in gastrectomized patients as indicating, at least indirectly, that you would be dubious about symptoms in patients who show mucosal atrophy; that you saw a sizeable number of patients with mucosal atrophy, and the symptoms were no different whether they had that or any other gastritis?

Dr. Rider: Symptoms in many cases are so vague that I don't believe we can establish a clynical syndrome on the basis of symptoms alone. I would like to make one statement concerning those who advocate biopsies in all these patients. As you know, some of the speakers said they performed blind biopsies, and others advocated biopsies by direct visualization. However, since the gastroscopist, by looking at the entire stomach, often will see areas that are normal, areas that show atrophic gastritis, and areas of hypertrophy in the same stomach, I don't believe that a small piece of tissue from one area gives a true picture of the entire stomach.

One of the previous speakers stated that he performed nine biopsies in one patient, but these biopsies still show a relatively small representative area of the entire stomach. The whole situation is difficult to evaluate, and we need more long-term studies.

For example, in the patients who have relatively mild atrophy, do the symptoms become worse? Do they eventually develop pernicious anemia or carcinoma?

(Question by Dr. Angelo B. Dagradi, Long Beach, Calif.): Our experience in postoperative stomachs with the finding of superficial gastritis is that the patient has had a Billroth III surgical procedure. Would you say a little bit about that, please?

Dr. Rider: Unfortunately, we found that the incidence of gastritis in patients having Billroth II procedure was no higher than the incidence of gastritis in any other group of patients complaining of these symptoms.

There is a need for examining a group of patients who do not have gastrointestinal symptoms. I think it would be a worthwhile study to examine a hundred or a thousand patients who have no gastric symptoms and compare their findings with the post-surgical patient.

Dr. G. Gordon McHardy (New Orleans, La.): I do think gastric mucosal changes occur in a number of patients after partial gastric resection. It is only logical to assume that the gastroscopically demonstrated changes carry some significance. The proximal loop may regurgitate materials into the stomach from the distal loop. Disturbance in gastric secretion may be too rapid or delayed to create extremes of stasis or rapid emptying and in emptying may create an abnormal condition to which the mucosal changes can be accredited. Just how much one can correlate gastroscopic findings with symptomatology cannot be accurately estimated but the patient was gastroscoped for some definite reason — is the gastritis the explanation?

Dr. Manuel Sklar (Detroit, Mich.): I believe there is some hazard in confusing functional bowel distress with symptoms related to the changes described. I think it as a very hard thing to separate one's thinking as to this, whether symptoms in reality are related to objective changes seen in disease or are in reality functional in origin.

Dr. John Tilden Howard (Baltimore, Md.): Years ago we made gastroscopic examinations on patients who had had partial gastrectomies; some patients had symptoms and others did not. We found no relationship between the interior of the stomach and gastric symptoms unless peptic ulceration was found. When a postoperative gastric mucosa was red or showed erosions, we simply called it "red stomach;" symptoms might or might not be associated with it. When the color was normal, symptoms might or might not have been present. I am bound to say here with conviction and some choler that any gastritis or redness of the stomach which may follow surgical operations on the organ is an incidental finding unless real peptic ulceration is present.

HIATUS HERNIA AND ESOPHAGITIS

Edwin Polish, Capt. M.C., USA
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Esophagitis in association with hiatus hernia is at present a well-established entity [1-3]. The recognition of this complication of a very common gastrointestinal abnormality is almost entirely dependent upon endoscopic examination, since the presence of esophagitis, in the absence of stricture, can only be suspected by radiographic and clinical evaluation. The endoscopic and clinical findings of 115 cases of symptomatic hiatal hernia were recently reviewed in an effort to define the clinical features which distinguish esophagitis from uncomplicated hiatal hernia.

METHODS

The 115 patients included in this analysis were all symptomatic and represented successive cases. Asymptomatic cases were excluded. All patients had a positive diagnosis of hiatal hernia made by x-ray. All endoscopic examinations were performed with the Eder-Hufford esophagoscope.

DIAGNOSTIC CRITERIA

Barrett[2] has discussed the meaning of peptic ulcer of the esophagus and esophagitis and has concluded that the entity of reflux esophagitis differs from that described as peptic ulcer of the esophagus in that superficial necrotic areas in the presence of generalized inflammation are seen with esophagitis, whereas the discrete ulcer is actually an ulcer of the gastric mucosa which extends into the mediastinum. Allison[1] has stated that there are four stages in the natural history of chronic esophagitis: esophagitis, esophagitis with acute ulceration, and esophagitis with chronic ulcer, and healed fibrous stenosis. Finally, McHardy[3] listed the endoscopic findings of erosive esophagitis to include combinations of erythema, edema, friable mucosa, granular denuded areas and erosions, and ulcerations often covered with a membranous exudate.

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It has been our experience that the stages of esophagitis in which there is ulceration are characterized by the following features: raw, denuded areas frequently covered by thick, grayish exudate with small areas of necrosis recognizable as whitish plaques and immediately surrounded by a vermillion border. The entire area is very friable and bleeds easily. We have not had the experience of recognizing any discrete ulcerations in an otherwise relatively normal appearing esophageal mucosa.

Frequently, the abnormalities are limited to hyperemia, mild to moderate edema, granularity and mild friability of the mucosa. We have chosen to designate this group as superficial esophagitis, reserving the term ulcerative esophagitis for the more dramatic disease state described in the preceding paragraph. The small group of patients in this series who had healed fibrous stenosis of the esophagus and who had had no prior surgery in the esophogastric region, upon endoscopic examination showed conical narrowing which prohibited the passage of the instrument and was associated with varying degrees of inflammation and erosion.

INCIDENCE

The total number of patients with symptomatic hiatal hernia was 115. During endoscopic examination of these 115 patients, ulcerative inflammation was demonstrated in 18, inflammation without ulcerative changes in 28 patients. Stricture of the esophagus was noted in three patients (Table 1).

SYMPTOMS

The symptoms included in the tabulation were pain, dysphagia, regurgitation effects of recumbency, and, finally, the presence of bleeding manifested by hematemesis or melena. Several patients had had past diagnoses of either duodenal or gastric ulcer. In all instances where hemorrhage is mentioned as a symptom, the probability of its coming from an active ulcer had been ruled out.

The most common presenting symptom in the 70 patients with uncomplicated hiatal hernia was pain. This was present in 54 patients, and was located retrosternally in 38, and in the epigastrium in 14. Only two patients described radiation of the pain to the left shoulder. A few included the precordium in their description of the location of the pain.

The next most common symptom occurring in this group was regurgitation. The nature of this symptom was usually immediate postprandial regurgitation of undigested food, but six of the patients characterized their complaint as regurgitation of clear sour liquid. Only two of these 21 patients actually complained of nausea associated with the regurgitation.

Nine patients had hemorrhage manifested by hematemesis or melena. None of the patients was considered to be in extremis as a result of hemorrhage. One patient received transfusion. Two of the nine hemorrhaged following an alcoholic debauch.

Dysphagia was present in nine patients. This symptom was most often described as "food sticking" usually retrosternally or in the subxyphoid area, and all but one of these patients had regurgitation as an associated symptom.

Eighteen patients mentioned recumbency as an aggravating factor in their symptoms either as a factor in accentuating pain or producing regurgitation (Table 2).

The 18 patients who met the criteria for the diagnosis of ulcerative esophagitis presented with dysphagia and evidence of hemorrhage in a higher proportion than existed in the patients with uncomplicated hiatal hernias. Seven of these patients complained of dysphagia and 10 had hematemesis or melena. The coincidence of these symptoms occurred only once.

Pain was practically a universal symptom of ulcerative esophagitis and occurred in 17 of the 18 patients. The one patient who did not have pain had mild hematemesis and odynophagia. The location of the pain and the presence of radiation to back or shoulder was no different than in the patients with uncomplicated hiatal hernia.

Regurgitation occurred in five patients and was never the chief complaint.

Ten of the patients with ulcerative esophagitis had one or more episodes of hemorrhage. None of these hemorrhages resulted in shock, but in four cases blood transfusions were necessary. The other six patients had intermittent episodes of melena or minor hematemesis. Some of these patients gave histories of melena or hematemesis which occurred in association with pain as a prominent symptom.

Dysphagia was the presenting complaint in seven of the 18 patients. Of these seven patients, four described their symptoms as marked pain associated with swallowing, actually odynophagia. The other three described intermittent difficulty in swallowing solid food.

Six patients stated that recumbency accentuated their pain or produced regurgitation (Table 3).

As stated earlier, the diagnosis of superficial esophagitis was made when the endoscopic picture consisted of hyperemia, edema, granularity, and mild friability. Twenty-seven patients were diagnosed at endoscopy as having esophagitis. Pain was present in 23 of these, and localization was much the same as in the other groups

Regurgitation was present in six patients, which is approximately the same incidence as in patients with uncomplicated hiatus hernia and those with ulcerative esophagitis.

Hemorrhage was present in five patients and dysphagia occurred in three. These two symptoms did not coexist. One of the patients with hemorrhage required transfusion.

Nine patients indicated accentuation of symptoms with recumbency (Table 4).

The three patients with esophageal strictures had dysphagia with significant weight loss. This symptom was the cardinal clinical feature and overshadowed all other complaints.

CONCLUSIONS

Review of the observations made on this group of patients with symptomatic hiatal hernia indicates that about 40 per cent had gross changes in the distal espohagus which were considered to be of an inflammatory nature. A little less than half of this group with abnormalities demonstrated marked pathological

change manifested by ulcerative esophagitis or benign stricture. The remainder had obvious inflammation, but ulceration had not developed.

The distinctive signs and symptoms of ulcerative esophagitis are hemorrhage manifested by hematemesis and/or melena, usually not severe, and some form of dysphagia, with odynophagia being very common. One or both of these symptoms was present in 17 of the 18 patients. Pain was practically a universal complaint. The symptom complex most frequently associated with ulcerative asophagitis, therefore, was pain in association with hemorrhage or dysphagia.

In general, it appeared that in terms of signs and symptoms there was little significant difference between superficial esophagitis and uncomplicated hiatal hernia.

SUMMARY

1) Forty per cent of 115 symptomatic patients with hiatal hernia were shown to have morphological abnormalities in the distal esophagus.

2) Eighteen patients had endoscopic changes designated as ulcerative esophagitis. There was a high incidence of hemorrhage and dysphagia in this group of patients.

3) Twenty-seven patients had esophageal mucosal changes designated as superficial esophagitis. The signs and symptoms did not differ significantly from those of uncomplicated hiatal hernia patients.

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TABLE I

INCIDENCE OF ESOPHAGITIS IN HIATUS HERNIA

	Total Number	*% of Total*
Hiatus Hernia	115	100
Ulcerative Esophagitis	18	15
Superficial Esophagitis	27	23
Stricture	3	2.5

TABLE II

UNCOMPLICATED HIATUS HERNIA

	Total Number	*% of Total*
Hiatus Hernia	70	100
Pain	54	77
Retrosternal	38	
Epigastric	14	
Radiation	2	
Regurgitation	21	30
Hemorrhage	9	13
Dysphagia	9	13
Recumbency	18	25

TABLE III

HIATUS HERNIA WITH ULCERATIVE ESOPHAGITIS

	Total Number	*% of Total*
Ulcerative Esophagitis	18	100
Pain	17	94
Retrosternal	12	
Epigastric	4	
Radiation	2	
Regurgitation	4	22
Hemorrhage	10	55
Dysphagia	7	39
Recumbency	6	33

TABLE IV

SUPERFICIAL ESOPHAGITIS WITH HIATAL HERNIA

	Total Number	*% of Total*
Superficial Esophagitis	27	100
Pain	23	85
Retrosternal	14	
Epigastric	6	
Radiation	3	
Regurgitation	7	26
Hemorrhage	5	19
Dysphagia	3	11
Recumbency	9	33

GELFOAM AS A DIAGNOSTIC AID IN ENDOSCOPY

Abraham I. Friedman, M.D., Hackensack, N. J.

Cytologic studies[1] for the diagnosis of gastrointestinal tract lesions employ various well known techniques to obtain satisfactory material for examination. These include lavage with or without enzyme digestants (Chymotrypsin) [2,3,4], barbottage[5,6], abrasive balloons[7], brushes[8], etc. Lavage of the esophagus with various solutions has been advocated and successfully employed by investigators in this field[9]. Abrasions with gauze sponges under direct vision has been used by us occasionally for superficial lesions where biopsy, for one reason or another, might be unsuccessful or too dangerous. The cytologic material is usually rinsed or eluted out of the meshes of the gauze sponge and the likelihood of losing or diluting diagnostic material is great.

We have recently employed gelfoam during esophagoscopy and in two patients were successful in obtaining adequate material for a positive diagnosis. The gelfoam is cut in .5-.7 cm. square segments and inserted between the jaws of a screw-type esophageal applicator. It is sufficiently firm to maintain its position if the abrasion is not performed too vigorously. It absorbs cellular exudates and exfoliative material adequately. The plug of gelfoam is then fixed in 5 to 10 ml. of Bouin's solution and the entire block sectioned. Unlike the gauze square, it will not damage the microtome knife or confuse the microscopic picture unduly.

Case #1 — A 47-year-old man was admitted because of persistent epigastric distress and dysphagia of two years duration. At the beginning of his illness, the upper abdominal distress was associated with belching, occasional heartburn and dysphagia. Barium meal examination at this time revealed no delay at the cardioesophageal junction, but some question was raised about distortion of the rugal folds at the cardia or the stomach. A gall bladder study then disclosed stones. Six months later he was operated on and a cholecystectomy performed. No mention was made at the time of surgery of any abnormality at the cardia of the stomach. When his symptoms did not completely disappear, two repeat Barium meal examinations were performed with equivocal findings. At this time dysphagia had progressed to the point where only liquids could be swallowed. The Barium meal examination on this admission disclosed two large filling defects on either side of the cardioesophageal junction. There was no obstruction to the flow of Barium, however, a Levin tube could not be passed into the stomach because of an impediment at the cardioesophageal junction. Gastroscopy was attempted, but again the stomach could not be entered. Consequently, esophagoscopy was performed. The distal 3 or 4 cm. of esophagus was narrowed and the lumen compressed and deviated to the right. The distal end of the instrument could not be advanced beyond 33 cm. There was no superficial injection, no evidence of inflammatory reaction or of a new growth. An applicator containing gelfoam gauze was passed through the narrowed and displaced segment and the normal appearing surface of the mucosa wiped several times with the gelfoam gauze. The material was placed in Bouin's solution. The pathologic report was anaplastic carcinoma. The patient was operated on and an ulcerating carcinoma was found in the fundus encircling the cardioesophageal junction and extending into the soft tissues. The lesion was considered inoperable.

Case #2 — A 64-year-old white male presented a history of dysphagia of six weeks duration; also, the ingestion of hot liquids produced a substernal burning sensation. There was no history of weight loss or hematemesis. Physical examination was essentially negative. Barium meal examination disclosed a superficial mucosal irregularity approximately 1.5 cm. in length on the left lateral aspect of the esophagus at the junction of the mid- and distal-third. Esophagoscopy was performed under

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local anesthesia and disclosed a flat superficial granulating lesion measuring in diameter approximately 1 cm. in the location visualized on the roentgen film. There was no injection around the circumference of the lesion, and practically no marginal elevation. The base was on a level with the surrounding mucosa, a grayish pink color with a mild granulating surface and very little exudate. In view of the flat nature of the lesion, abrasive cytology was performed. A gelfoam plug firmly attached to a flexible applicator was passed over the lesion several times, provoking a mild oozing. The gelfoam plug was placed in Bouin's solution. A biopsy was then performed. The pathologic report in each instance was squamous cell carcinoma.

COMMENT:

Gelfoam has been employed to absorb cellular exudate and exfoliative material and to facilitate the diagnosis in two patients with carcinoma of the upper gastrointestinal tract. In the first case, regurgitation of gastric contents undoubtedly was responsible for the presence of cancer cells lying free in the esophageal lumen. In the second case superficial abrasion produced adequate material for a diagnosis that was confirmed by a tissue biopsy. The use of gelfoam is suggested in those patients where endoscopy (esophagoscopy) cannot obtain adequate tissue for study by means of biopsy, either because of inability to reach the involved area, or because of the possibility of perforation or for any other reason.

CONCLUSION:

Gelfoam was successfully employed to obtain adequate cellular tissue for histologic study and diagnosis. It is suggested that this method may be useful in the diagnosis of lesions of the upper gastrointestinal tract during endoscopy (esophagoscopy).

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LYMPHOSARCOMA OF THE STOMACH
(Value of Gastroscopy With Case Report)

Murrel H. Kaplan, M.D.

Lymphosarcoma is one of the uncommon neoplasms of the stomach. It has been variously reported as representing one-third to one-half of the sarcomas, which occur in only 1.5 to 2.5% of all gastric tumors. The incidence of lymphosarcoma of the stomach reported in a recent survey at Mount Sinai Hospital in New York, was found to be much higher, 3.4%[1]. At Touro Infirmary, from 1933 to 1958, ten cases were diagnosed out of a total of 734 gastric neoplasms, or 1.4%.

The value of gastroscopy in definitely diagnosing this disease has been most controversial. Schindler originally stated that the gastroscopic findings are "characteristic and can not be mistaken for any other picture"[2]. Bockus[3] and many others[4,5,6,7,8] objected vehemently, and concluded that "the number of gastroscopic observations does not justify and definite statement concerning the value of gastroscopy in the differential diagnosis between sarcoma and other gastric tumors or invasive processes"[3]. Following this wave of skepticism, Schindler qualified his position maintaining that "the gastroscopic diagnosis of lymphoblastoma is possible", citing proven cases by Blomquist; Giere; Cash and Rapport; and Yarnis and Colp[9].

In reviewing several series of cases, the following "box score" was compiled. (Table)

The table reveals that 21 of the 77 cases of lymphosarcoma had been gastroscoped; 3 were correctly diagnosed. In the 25-year study period at Touro Infirmary, only two of the ten cases of lymphosarcoma underwent gastroscopy. One was diagnosed hypertrophic gastritis; and the other was undiagnosed because of an unsatisfactory examination, due to lack of patient cooperation.

In analyzing the difficulties encountered, the following must be considered.

1. The gross pathology is multiple and not pathognomonic.
2. The incidence of lymphosarcoma is low compared with carcinoma.
3. The roentgen finding of tumor hastens the patient to surgery before gastroscopy can be performed.

The gross pathology has been classified as follows:[1]

1. Infiltrative — local or diffuse, with large thickened rugae, smooth, granular or cobble-stoned, but at times having a more flattened appearance, plaquelike.
2. Ulcerative — localized tumors with single or multiple ulcerative lesions having necrotic bases and indurated edges.
3. Nodular — multiple intragastric nodular masses with smooth mucosae or with shallow and deep ulceration.
4. Polypoid — vascular, rubbery, ulcerating masses with a small intra-luminal and a large extraluminal mass. It is usually ulcerative and necrotic in areas.
5. Combined — combination of two or more of the aforementioned classes.

Except in well organized and integrated clinics, the gastro-enterologist does not have the opportunity to see all of the cases of lmphosarcoma before surgery. As a rule, after the roentgenologist reports a gastric ulcer failing to heal on the usual routine, or a polypoid mass in the stomach, the apprehension of the attending physician prompts immediate exploration. However, there are a few instances in which the roentgenograms are not conclusive, and gastro-enterological consultation is sought. Gastroscopy is performed, and pathology described, but frequently a definite diagnosis is lacking. Such a case is to be reported.

In the final analysis, the Histopathologist is the diagnostician. Even those who claim that gastroscopy may prove of definite value[12], admit that it is almost impossible without

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biopsy to differentiate lyphosarcoma from carcinoma. More striking are those accounts of surgeons who at laparotomy find diffuse infiltration without obvious masses, and who refuse to venture a positive diagnosis, or to proceed with surgery without the opinion of a Pathologist. Perforated ulcers have been closed only to be diagnosed lymphosarcoma at a later date[1]. Such is the dilemma of the surgeon.

The following case report is illustrative of the problem involving the gastroscopic appearance of lymphosarcoma.

Fig. 1. 5-24-57. "No organic disease of esophagus, stomach or duodenum".

Case Report: Mrs. B. D., age 52, white, female, admitted, Touro Infirmary 12-9-58 with a chief complaint of epigastric pain of two years duration. This was severe burning type, and radiated to the left side and back. It occurred more often before meals, and was relieved usually by milk or alkali. This relief was very temporary, and recurrences were the rule. Pain was intensified by highly seasoned foods. There was tarry or bright red blood in the stool. In the few weeks prior to admission, the patient had vomited almost every morning. Vomitus consisted of mucous with some bile staining, but no gross blood or coffee-ground material. There was a weight loss of 10-15 pounds in the six weeks prior to admission. This patient had been hospitalized in May 1957 for similar complaints, at which time a G. I. survey was negative (Fig. 1), and she was discharged with a diagnosis of "functional disease".

Physical examination revealed blood pressure 106/60, pulse 72, respiration 20, temperature 98.6. No evidence of any great weight loss. Other than tenderness in the epigastrium and right hypochondrium of the abdomen, there were no other findings.

G. I. Series ". . . . the lesser curvature of the stomach in the mid-portion extending nearly to the pre-pyloric area over a distance of about 3 inches exhibits a very shallow irregularity. This suggested superficial ulceration. No actual ulcer is demonstrated. There is marked tenderness to palpation in this area. There is mild coarsening of the mucosal folds of the stomach in this region. In the lateral film of the stomach, a very shallow projection is present on the posterior wall, 1 cm. in length which may possibly represent a superficial ulcer crater. This could not be identified at fluoroscopy, however. The duodenal bulb when fully distended is normal in contour." (Fig. 2, 3)

Fig. 2. 12-23-58 "The lesser curvature of the stomach in the mid portion extending nearly to the prepyloric area over a distance of about 3 inches exhibits a very shallow irregularity".

Fig. 3. 12-23-58. "In the lateral film of the stomach, a very shallow projection is present on the posterior wall, 1 cm in length which may possibly represent a superficial ulcer crater".

A chest radiograph was normal. The urinalysis and hemogram were within normal limits. There was no free hydrochloric acid on Ewald test meal, total acidity 21, occult blood, trace. Stool for occult blood was positive.

In view of the inconclusive roentgenograms, it was decided to put the patient on a modified Sippy regimen for ten days. The repeat G. I. Series revealed essentially the same findings as were previously reported.

Gastroscopic examination disclosed pylorus and antrum to be normal. Visible peristalsis was observed from the angulus to the pylorus. The rugae of the greater curvature, and for the most part of a posterior wall appeared normal. The mucosa of the lesser curvature, anterior wall, and part of the posterior wall was hyperemic and serrated. There appeared to be an infiltrative process on which there were small islands of epithelium. A few small minute ulcerations were noted. The impression was non-specific granuloma.

On the basis of the gastroscopic findings, as well as roentgenograms, surgery was undertaken. The operative report read: "hard indurated area along the lesser curvature involving the anterior and posterior walls of the stomach, approximately 3 cms. proximal to the pylorus. The area of induration extends for approximately 3½ to 4 cms. along the lesser curvature. A gastrostomy opening was made, and inspection failed to reveal any ulcer or definite fungating mass, however, the previously described indurating mass was visualized. A biopsy was taken. Report of the frozen section revealed a benign lesion. A wedge resection was performed".

The report of the pathologist was as follows: "The specimen consisted of a portion of the stomach measuring 9.5 cms. in length x 2 x 4 in width. The wall of the stomach is thick measuring 14 cms. The mucosa surfaces were smooth and glistening. The mucosa which appeared to be somewhat uneven is markedly hemorrhagic and showed several focal areas of scarring. Microscopic diagnosis: Lymphosarcoma, lymphocytic type, of the stomach (Fig. 4).

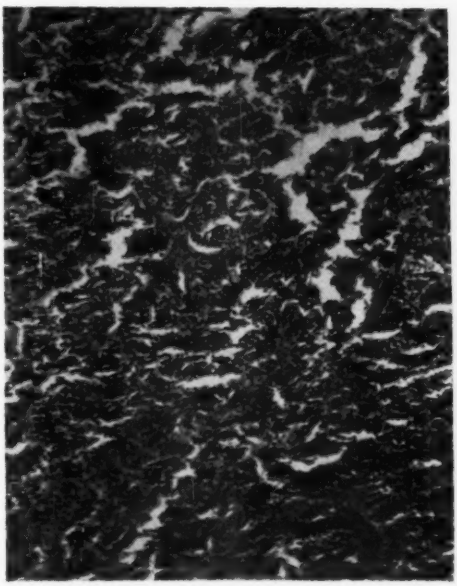

Fig. 4. Lymphosarcoma of the stomach.

After much debate, it was decided not to perform resective surgery, but to rely upon radiation therapy.

Patient did moderately well until she started vomiting in July, 1959, at which time she was readmitted to the hospital. There was slight, if any, loss of weight and very little pain.

G. I. Series revealed a considerable retention of barium in the stomach which did not yield to medical therapy. Subsequent studies brought the following conclusion: "gastric obstruction, distally, which may be on the basis either of operative procedure (wedge resection), ulceration in the vicinity of the base of the duodenal bulb, or even possibly extension of the gastric neoplasm".

At exploration, the surgeon noted that the stomach appeared smooth, soft, with no obvious masses, either to inspection or palpation. The pylorus was patent, and it was his feeling that the retention was due to the angulation of the stomach and its adhesion to the liver from previous surgery. A posterior gastroenterostomy was performed. A biopsy was taken near the site of previous surgery.

Report of the pathologist was as follows: The microscopic sections revealed the gastric mucosa and submucosa to be benign. There is no evidence of lymphosarcoma (Fig. 5).

The post-operative course was uneventful. Patient returned to her usual household duties.

Fig. 5. Regression following radiation therapy.

SUMMARY

1. Lymphosarcoma of the stomach, although uncommon, may present itself in five gross classifications: infiltrative, ulcerative, nodular, polypoid, and combined.

2. Gastroscopy may be of aid in locating abnormal pathology. However, even with roentgenographic assistance and the clinical history, a biopsy of the tissue is the only irrefutable evidence of lymposarcoma.

3. A case is reported by gastroscopy of a suspected lesion; proven by exploration and biopsy; treated with wedge resection and radiotherapy with subsequent microscopic evidence of regression of the lesion.

Acknowledgment: I am indebted to Dr. Alfred B. Longacre for permission to use this case; to Dr. Arthur R. Payzant, Department of Roentgenology and Radiology, Touro Infirmary; and to Dr. Donald M. Bradburn, Department of Pathology, Touro Infirmary for their assistance.

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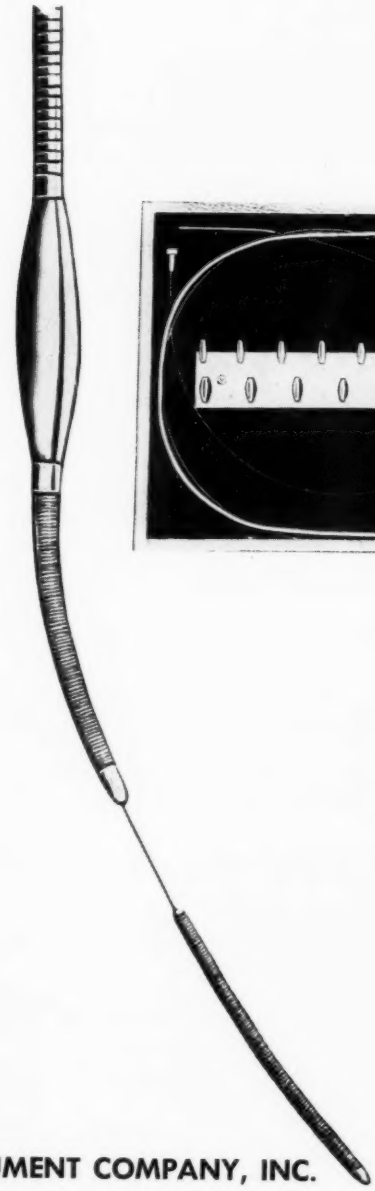

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